WE CLAIM:

1. Recrystallized lead or lead alloy formed by recrystallizing a mass of lead or lead alloy to produce a percentage of special grain boundaries which is at least 20% of the total grain boundaries of said lead or lead alloy; said recrystallization being effected by subjecting said mass of lead or lead alloy to at least one cycle having the sequential steps of:

a) deforming at least a portion of said mass of lead or lead alloy while maintaining said mass at a temperature which is above room temperature up to the solvus temperature of said lead or lead alloy, and optionally quenching said mass;

b) annealing said mass of lead or lead alloy at a temperature between 150°C and the melting of said alloy for a time sufficient to effect recrystallization of said lead or lead alloy; and

c) optionally repeating steps a) and b);

said lead alloy being lead alloyed with at least one element selected from the group consisting of Ag, Al, As, Ba, Bi, Ca, Cd, Cu, Fe, Li, Mg, Na, Se, Sb, Sn, Sr, and Zn.

2. The recrystallized lead or lead alloy of claim 1 wherein said mass of lead or lead alloy which is subjected to said at least one cycle is in the form of a solid strip obtained by casting or extruding said lead or lead alloy.

3. The recrystallized lead or lead alloy of claim 2 wherein said deforming takes place by rolling, expanding, punching, bending or peening said solid strip.

4. The recrystallized lead or lead alloy of claim 3 which is in the form of a positive current collector for use in a lead-acid battery.

5. The recrystallized lead or lead alloy of claim 4 wherein said solid strip has a thickness equal to or greater than the desired thickness of said positive current collector.

6. The recrystallized lead or lead alloy of claim 1 formed by recrystallizing said mass of lead or lead alloy to produce a percentage of special grain boundaries which is greater than 50% of the total grain boundaries of said lead or lead alloy.

7. The recrystallized lead or lead alloy of claim 1 wherein said deforming takes place within a temperature range which is 15 °C up to the solvus temperature of said lead or lead alloy.

8. The recrystallized lead or lead alloy of claim 7 wherein said temperature range is 40 °C - 95 °C.

9. The recrystallized lead or lead alloy of claim 3 wherein said strip is deformed by rolling, bending or peening.

10. The recrystallized lead or lead alloy of claim 9 wherein said strip is deformed by peening.

11. The recrystallized lead or lead alloy of claim 3 wherein said strip is perforated.

12. Recrystallized lead or lead alloy formed by recrystallizing a cast billet of lead or lead alloy to produce a percentage of special grain boundaries which is at least 40% of the total grain boundaries of said lead or lead alloy; said recrystallization being effected by subjecting said billet to at least one cycle having the sequential steps of:

a) extruding said billet to a strip of desired thickness while maintaining the strip at a temperature which is above room temperature up to the solvus temperature of said lead or lead alloy, optionally quenching the strip;

b) optionally deforming the strip by rolling, expanding, punching, bending or peening to a desired thickness while maintaining the strip at a temperature which is above room temperature up to the solvus temperature of said lead or lead alloy, optionally quenching the strip;

c) annealing the lead or lead alloy strip at a temperature between 150 °C and the melting point of the alloy for a time sufficient to effect recrystallization of the lead or lead alloy;

said lead alloy being lead alloyed with at least one element selected from the group consisting of Ag, Sn, Cu, Zn, As, Bi, Li, Na, Al, Mg, Ca, Sr, Ba, Cd, Fe, Se, and Sb.

13. A method for reducing intergranular degradation of lead or lead alloy which comprises recrystallizing said lead or lead alloy to produce a percentage of special grain boundaries which is at least 20% of the total grain boundaries of said lead or lead alloy; said recrystallization being effected by subjecting said lead or lead alloy to at least one cycle having the sequential steps of:

a) deforming at least a portion of a mass of said lead or lead alloy while maintaining said mass at a temperature which is above room temperature up to the solvus temperature of said lead or lead alloy, optionally quenching said mass;

b) annealing said mass of lead or lead alloy at a temperature between 150°C and the melting point of said alloy for a time sufficient to effect recrystallization of said lead or lead alloy;

c) optionally repeating steps a) and b);

said alloy being lead alloyed with at least one element selected from the group consisting of Ag, Al, As, Ba, Bi, Ca, Cd, Cu, Fe, Li, Mg, Na, Se, Sb, Sn, Sr, and Zn.